**Amendments to the Specification:**

Please replace paragraph [004], [010], [014], [024], [028], [029], [031], [047], [048], [050], [055], [056] with the following amended paragraphs:

**[004]** For example, U.S. Patent No. 6,360,730 B1 to Koethe claims a method for inert loading of jet fuel by directly injecting an inerting agent into jet fuel while it is being loaded onboard an aircraft. U.S. Patent Application 20020162915 A1 to Mitani claims an environmental unit for an airplane wherein air of high-temperature and high-pressure is extracted from an engine or an auxiliary power portion of an airplane. The extracted air is regulated in temperature and pressure by an air conditioning portion and then the regulated air is supplied to a pressurized chamber, where the air exhausted from the pressurized chamber or air drawn out of the pressurized chamber is separated into air enriched with nitrogen and air enriched with oxygen. The air enriched with oxygen is supplied to the pressurized chamber again. The air enriched with nitrogen is supplied to the fuel tanks. The air enriched with oxygen is once again supplied to the pressurized chamber by making use of the circulation line of the auxiliary air conditioning portion.

**[010]** Yet another aspect of the invention includes steps of ducting the air stream via a duct assembly with at least one bleed air inlet, at least one ram air inlet, and at least one air stream exit; receiving the air stream from the ducting assembly and cooling the air stream with a primary heat exchanger, the primary heat exchanger located downstream from the at least one bleed air inlet and located downstream from the at least one ram air inlet; receiving the air stream from the duct assembly with a gas generating system heat exchanger, cooling the air stream, and providing the air stream to the duct assembly; determining temperature in the duct assembly and generating a temperature value corresponding to the temperature via a first temperature sensor and a second

temperature sensor, each temperature sensor mechanically associated with the duct assembly; receiving a temperature value and a pressure value, and generating a corresponding command signal via a controller monitor; receiving and responding to the command signal via at least one valve, the at least one valve selected from a group essentially comprising a pressure regulating and shutoff valve, a check valve, a flow shutoff valve, an ejector shutoff valve, a thermal shutoff valve, an ASM shutoff valve, and an isolation valve; receiving the air stream from the duct assembly, separating nitrogen enriched air (NEA) from the air stream, and providing the NEA to the duct assembly via an air separation module (ASM) assembly having a primary module and at least one secondary module, the ASM assembly located downstream from both temperature sensors; controlling NEA flow through the duct assembly from the ASM assembly to the conduit exit via the at least one flow control orifice, the at least one flow control orifice associated with a portion of the duct assembly located downstream from the ASM assembly; and preventing the entry of contaminants into the duct assembly from the conduit exit.

**[014]** In a gas inerting system having a duct assembly with a conduit exit; a primary heat exchanger; a gas generating system heat exchanger; a first temperature sensor and a second temperature sensor; a controller monitor; a valve assembly including a pressure regulating and shutoff valve and a thermal shutoff valve; an air separation module (ASM) assembly having a primary module and a secondary module; a flow control orifice; and an NEA check valve, still another aspect of the present invention includes a cooling system with an ejector for drawing air into the duct assembly and over the gas generating system heat exchanger for cooling purposes.

**[028]** During maintenance checkout intervals, the GGS 10 may also be enabled by sending a signal~~ing~~ from the controller monitor 60 to the PRSOV 14, which opens the PRSOV 14. Cooling airflows 13g and 67 may be provided by

the ejector 22 or by an ECS fan (not shown) respectively, the ECS fan located downstream from the heat exchanger 70 and directly upstream from the ram exit 66d. If, for example, simultaneous pack operation were desired, either the right-hand pack 72 or the left-hand pack 74 is turned on so as to induce airflow 77 via the ECS fan (not shown), backward through the GGS heat exchanger 18. Thus, once the ECS fan (not shown) is activated, the airflow 77 is drawn in via the ram air overboard exit 76 and drawn backwards through the GGS heat exchanger 18, and drawn as airflow 67a toward ram air conduit 66. Meanwhile, the ECS fan also draws in the airflow 67c via the ram inlet 66c. Both airstreams 67c and 77 are drawn together into airflow 67, and drawn through the heat exchanger 70 to flow as airflow 67d through the ram exit 66d. Although the airflow 77 may flow through the GGS heat exchanger 18 in the reverse direction from normal, this operation will have no effect on the performance characteristics of the GGS 10.

**[029]** Regardless of the source of the air supply, once an air supply 13c reaches the conjunction of conduits 12c and 12g, the air stream 13c is passed to the PRSOV 14. The PRSOV 14 may provide a primary on/off functionality for the GGS 10. In addition, the PRSOV ~~28~~ 14 may regulate air pressure to minimize the probability of providing excessive pressure (and resulting flow) to the GGS 10. The PRSOV 14, may include for example, an on/off solenoid (not shown). The PRSOV 14 may be actuated and may receive pressurized air from a source (not shown) connected to the bleed air inlets 12a. The solenoid (not shown) may then vent the PRSOV 14 upon receipt of a discrete signal given, for example, during ground operation or a cargo fire event. The PRSOV 14 may also be closed in case of an overtemperature detection or a shutdown signal from a controller source (not shown). For example, if the airflow 13j into the ASM assembly 34 is temperature-controlled at approximately 190°F, within an approximately 10°F variance, airflow 13j is not expected to exceed 200°F during steady state operation. If, however, airflow temperature exceeds the

preselected setpoint, the controller monitor 60 may immediately close the PRSOV 14 to cut off the airflow 13c into the ASM assembly 34 and protect the GGS 10.

**[031]** After the air supply 13c passes through the PRSOV ~~28~~14, it may pass via conduit 12d as airflow 13d to the ozone/hydrocarbon converter 16, which may comprise a catalyst formulation effective for hydrocarbon oxidation as well as ozone decomposition, preventing the harmful effects of ozone on component materials such as those found in the ASM assembly 34. The hydrocarbon oxidation may form carbon dioxide and water in quantities that do not affect the cabin environment.

**[047]** Turning now to Figure 2, there is shown an alternate embodiment of the ASM assembly 34 of Figure 1 having in addition to the primary control loop 81, a secondary control loop 82 and an additional ASM module 36e, where the primary control loop 81 and the secondary control loop 82 together comprise the control loop system 80. The addition of the ASM module 36e merely illustrates one of the possible designs for the ASM assembly 34 and may be utilized, for example, in relatively large aircraft requiring relatively high NEA output. The addition of the second control loop 82 provides a redundancy in pressure regulation and control of the NEA flow 13s by inclusion of a control loop dedicated specifically to the NEA output 13s of the secondary ASMs 36b-36e.

**[048]** In the alternate embodiment of Figure 2, the airflows 13r1-4 may enter the secondary ASMs 36b-36e via the conduits 12j and 12r1-4. After gas separation in the secondary ASMs 36b-36e, the NEA flow 13s may be ducted directly to the center wing fuel tank (not shown) via conduits 12s, a secondary flow control valve 86, the secondary flow control orifice 50, and the secondary NEA check valve 54. Alternatively, the NEA flow 13s may be ducted via 12s to

the secondary control loop 82 that may provide redundant functionality to that of the first control loop ~~80~~81.

**[050]** Air 13t other than the NEA may exit the primary ASM 36a and the secondary ASMs 36b-e via conduits 12t, and vented as air 13w overboard via conduit 12w.

**[055]** The secondary control loop ~~81~~82 may be functionally similar to the primary control loop ~~82~~81. For example, the secondary control loop 82 may receive NEA flow 13s via conduit 12z (NEA flow 13z) and duct the NEA directly to the center wing fuel tank (not shown) via a flow control orifice 50a, which may regulate flow of the NEA, and the check valve ~~52~~54, and finally, as NEA flow 13y, may be ducted to the center wing fuel tank (not shown) via the second conduit exit 12y.

**[056]** Alternatively, all or a portion of NEA flow 13s may ~~also~~ be ducted through secondary control loop 82 via conduit 12x as NEA flow 13x through a flow control orifice 50b for flow regulation, through conduit 12z as NEA flow 13z, through ~~and~~ the NEA check valve 54, then exit to the center wing fuel tank (not shown) as NEA flow 13y via the secondary conduit exit 12y. As previously described, the flow control sensor 88 may operate in conjunction with the controller monitor (shown as 60 in Figure 1) to sense or measure flow and signal the controller monitor (shown as 60 in Figure 1) which, in turn, may actuate closure or opening of the flow control shutoff valve 86.

Please replace the Abstract in its entirety with the following amended paragraph:

The present invention provides a system and method for generation of nitrogen enriched air for inerting aircraft ~~fuels~~ fuel tanks. One embodiment of

the present invention includes a duct assembly; a primary heat exchanger; a gas generating system heat exchanger; a first temperature sensor; a second temperature sensor; a controller monitor; a valve; an air separation module assembly having a primary module and a secondary module; at least one flow control orifice; and a pressure sensor. The present invention utilizes a minimal complement of components and streamlined processes, thus minimizing structural and operational costs while optimizing performance and safety features.